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No. 118

The Sun's Declination and Equation of Time

1910

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Table of Sunset and Sunrise

PUBLISHED BY THE HYDROGRAPHIC OFFICE UNDER
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WASHINGTON
GOVERNMENT PRINTING OFFICE
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NOTE.

Compiled from the Nautical Almanac, for use in connection with Hydrographic Office publication No. 106, Azimuth Tables.

Table I contains for Greenwich mean noon of each day the Sun's Apparent Declination and the Equation of Time. Adjoining columns contain the differences of these quantities for one hour.

Tables II and III contain the correction for West Longitude to be applied to Standard Time for reduction to Local Mean Time.

Table IV. Sun's Rising and Setting, as published in the Tide Tables issued by the Coast and Geodetic Survey of the Department of Commerce and Labor.

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JANUARY, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	THE SUN'S Difference for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Sat	1	S. 23 3 30.2	+ 11.73	3 25.73	1.187
SUN	2	22 58 35.0	+ 12.88	3 54.08	1.175
Mon	3	22 53 12.3	14.02	4 22.12	1.161
Tues	4	22 47 22.3	15.15	4 49.80	1.145
Wed	5	22 41 5.1	16.28	5 17.10	1.129
Thur	6	22 34 20.9	17.40	5 44.00	1.111
Frid	7	22 27 9.9	18.51	6 10.46	1.093
Sat	8	22 19 32.4	19.62	6 36.47	1.073
SUN	9	22 11 28.5	+ 20.71	7 1.98	1.052
Mon	10	22 2 58.5	21.79	7 26.95	1.029
Tues	11	21 54 2.6	22.87	7 51.37	1.005
Wed	12	21 44 41.0	23.93	8 15.20	0.980
Thur	13	21 34 54.0	24.98	8 38.44	0.954
Frid	14	21 24 42.0	26.02	9 1.03	0.927
Sat	15	21 14 5.3	27.05	9 22.96	0.900
SUN	16	21 3 4.1	+ 28.06	9 44.23	0.871
Mon	17	20 51 38.9	29.05	10 4.78	0.842
Tues	18	20 39 49.8	30.03	10 24.61	0.811
Wed	19	20 27 37.3	31.00	10 43.69	0.779
Thur	20	20 15 1.7	31.96	11 2.03	0.747
Frid	21	20 2 3.4	32.90	11 19.61	0.715
Sat	22	19 48 42.6	33.83	11 36.41	0.683
SUN	23	19 34 59.7	+ 34.75	11 52.42	0.650
Mon	24	19 20 55.2	35.64	12 7.64	0.617
Tues	25	19 6 29.4	36.52	12 22.07	0.584
Wed	26	18 51 42.6	37.38	12 35.71	0.551
Thur	27	18 36 35.2	38.23	12 48.55	0.518
Frid	28	18 21 7.6	39.07	13 0.60	0.485
Sat	29	18 5 20.1	39.89	13 11.85	0.451
SUN	30	17 49 13.2	+ 40.69	13 22.29	0.418
Mon	31	17 32 47.2	41.48	13 31.92	0.384
Tues	32	S. 17 16 2.5	+ 42.25	13 40.75	0.351

The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

FEBRUARY, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	THE SUN'S Difference for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Tues	1	S. 17 16 2.5	+ 42.25	13 40.75	0.351
Wed	2	16 58 59.5	43.00	13 48.78	0.317
Thur	3	16 41 38.5	43.74	13 56.00	0.284
Frid	4	16 24 0.0	44.46	14 2.43	0.250
Sat	5	16 6 4.5	45.17	14 8.05	0.217
SUN	6	15 47 52.2	+ 45.86	14 12.88	0.184
Mon	7	15 29 23.5	46.53	14 16.92	0.151
Tues	8	15 10 38.9	47.18	14 20.16	0.118
Wed	9	14 51 39.0	47.81	14 22.60	0.085
Thur	10	14 32 24.1	48.43	14 24.26	0.052
Frid	11	14 12 54.6	49.03	14 25.13	0.019
Sat	12	13 53 10.9	49.61	14 25.22	0.013
SUN	13	13 33 13.5	+ 50.17	14 24.53	0.045
Mon	14	13 13 2.8	50.71	14 23.07	0.077
Tues	15	12 52 39.4	51.23	14 20.85	0.109
Wed	16	12 32 3.7	51.74	14 17.88	0.140
Thur	17	12 11 15.9	52.23	14 14.16	0.170
Frid	18	11 50 16.5	52.71	14 9.71	0.200
Sat	19	11 29 6.0	53.16	14 4.55	0.229
SUN	20	11 7 44.9	+ 53.60	13 58.69	0.258
Mon	21	10 46 13.5	54.02	13 52.15	0.286
Tues	22	10 24 32.1	54.42	13 44.96	0.313
Wed	23	10 2 41.3	54.81	13 37.12	0.339
Thur	24	9 40 41.4	55.18	13 28.66	0.365
Frid	25	9 18 32.7	55.54	13 19.59	0.390
Sat	26	8 56 15.6	55.88	13 9.94	0.414
SUN	27	8 33 50.5	+ 56.20	12 59.73	0.437
Mon	28	8 11 17.8	56.51	12 48.98	0.460
Tues	29	S. 7 48 38.0	56.80	12 37.69	0.481

The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

MARCH, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.			THE SUN'S Difference for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.		Difference for 1 Hour.
			°	′ ″	″	m	s	s
Tues	1	S.	7	48 38.0	+ 56.80	12	37.69	0.481
Wed	2		7	25 51.3	57.08	12	25.91	0.501
Thur	3		7	2 58.1	57.34	12	13.64	0.522
Frid	4		6	39 58.9	57.59	12	0.90	0.542
Sat	5		6	16 54.0	57.82	11	47.71	0.560
SUN	6		5	53 43.8	+ 58.03	11	34.09	0.576
Mon	7		5	30 28.6	58.23	11	20.07	0.593
Tues	8		5	7 8.9	58.41	11	5.65	0.609
Wed	9		4	43 45.0	58.57	10	50.86	0.624
Thur	10		4	20 17.4	58.72	10	35.71	0.638
Frid	11		3	56 46.5	58.85	10	20.22	0.652
Sat	12		3	33 12.6	58.96	10	4.39	0.664
SUN	13		3	9 36.2	+ 59.05	9	48.25	0.676
Mon	14		2	45 57.8	59.14	9	31.82	0.687
Tues	15		2	22 17.7	59.20	9	15.11	0.699
Wed	16		1	58 36.2	59.25	8	58.13	0.710
Thur	17		1	34 53.9	59.28	8	40.90	0.720
Frid	18		1	11 11.0	59.29	8	23.45	0.730
Sat	19		0	47 28.0	59.29	8	5.81	0.739
SUN	20		0	23 45.2	+ 59.27	7	47.98	0.747
Mon	21	S.	0	0 2.9	59.24	7	29.99	0.753
Tues	22	N.	0	23 38.4	59.19	7	11.86	0.758
Wed	23		0	47 18.4	59.13	6	53.62	0.762
Thur	24		1	10 56.9	59.06	6	35.30	0.765
Frid	25		1	34 33.5	58.97	6	16.91	0.767
Sat	26		1	58 7.8	58.87	5	58.47	0.768
SUN	27		2	21 39.5	+ 58.75	5	40.01	0.768
Mon	28		2	45 8.3	58.63	5	21.55	0.768
Tues	29		3	8 33.8	58.49	5	3.12	0.766
Wed	30		3	31 55.7	58.33	4	44.74	0.764
Thur	31		3	55 13.7	58.16	4	26.43	0.761
Frid	32	N.	4	18 27.4	+ 57.97	4	8.21	0.757

The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing and north declinations increasing.

APRIL, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination	Difference for 1 Hour.	Equation of Time, to be Subtracted from / Added to Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Frid.	1	N. 4 18 27.4	+ 57.97	4 8.21	0.757
Sat.	2	4 41 36.6	57.77	3 50.10	0.752
SUN.	3	5 4 40.8	+ 57.56	3 32.12	0.746
Mon.	4	5 27 39.8	57.34	3 14.30	0.739
Tues.	5	5 50 33.2	57.10	2 56.65	0.731
Wed.	6	6 13 20.7	56.84	2 39.18	0.723
Thur.	7	6 36 1.8	56.57	2 21.92	0.714
Frid.	8	6 58 36.2	56.29	2 4.88	0.705
Sat.	9	7 21 3.6	55.99	1 48.07	0.695
SUN.	10	7 43 23.6	+ 55.67	1 31.51	0.685
Mon.	11	8 5 35.8	55.34	1 15.20	0.674
Tues.	12	8 27 39.8	54.99	0 59.17	0.662
Wed.	13	8 49 35.2	54.62	0 43.42	0.650
Thur.	14	9 11 21.7	54.24	0 27.96	0.637
Frid.	15	9 32 59.0	53.85	0 12.81	0.624
Sat.	16	9 54 26.7	53.44	0 2.01	0.610
SUN.	17	10 15 44.4	+ 53.02	0 16.49	0.595
Mon.	18	10 36 51.8	52.59	0 30.61	0.580
Tues.	19	10 57 48.7	52.14	0 44.36	0.564
Wed.	20	11 18 34.7	51.68	0 57.72	0.548
Thur.	21	11 39 9.4	51.20	1 10.68	0.531
Frid.	22	11 59 32.5	50.71	1 23.22	0.513
Sat.	23	12 19 43.7	50.21	1 35.32	0.494
SUN.	24	12 39 42.8	+ 49.70	1 46.97	0.475
Mon.	25	12 59 29.4	49.17	1 58.16	0.455
Tues.	26	13 19 3.3	48.63	2 8.87	0.435
Wed.	27	13 38 24.1	48.08	2 19.08	0.414
Thur.	28	13 57 31.5	47.52	2 28.78	0.393
Frid.	29	14 16 25.3	46.94	2 37.96	0.371
Sat.	30	14 35 5.0	46.35	2 46.62	0.349
SUN.	31	N. 14 53 30.4	+ 45.75	2 54.74	0.326

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

MAY, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	THE SUN'S Difference for 1 Hour.	Equation of Time, to be Added to Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
SUN	1	N. 14 53 30.4	+ 45.75	2 54.74	0.326
Mon	2	15 11 41.2	45.14	3 2.30	0.303
Tues	3	15 29 37.1	44.51	3 9.31	0.280
Wed	4	15 47 17.8	43.87	3 15.75	0.256
Thur	5	16 4 43.0	43.21	3 21.61	0.232
Frid	6	16 21 52.2	42.54	3 26.90	0.208
Sat	7	16 38 45.2	41.86	3 31.62	0.184
SUN	8	16 55 21.7	+ 41.16	3 35.76	0.160
Mon	9	17 11 41.3	40.45	3 39.33	0.136
Tues	10	17 27 43.7	39.73	3 42.32	0.112
Wed	11	17 43 28.5	38.99	3 44.75	0.088
Thur	12	17 58 55.5	38.24	3 46.61	0.065
Frid	13	18 14 4.3	37.48	3 47.91	0.042
Sat	14	18 28 54.6	36.71	3 48.66	0.019
SUN	15	18 43 26.2	+ 35.92	3 48.86	0.004
Mon	16	18 57 38.8	35.11	3 48.50	0.027
Tues	17	19 11 32.1	34.30	3 47.59	0.050
Wed	18	19 25 5.7	33.48	3 46.13	0.072
Thur	19	19 38 19.6	32.65	3 44.13	0.095
Frid	20	19 51 13.4	31.81	3 41.59	0.117
Sat	21	20 3 46.9	30.96	3 38.51	0.139
SUN	22	20 15 59.8	+ 30.10	3 34.90	0.161
Mon	23	20 27 51.9	29.23	3 30.77	0.183
Tues	24	20 39 23.0	28.35	3 26.11	0.205
Wed	25	20 50 33.0	27.46	3 20.94	0.226
Thur	26	21 1 21.5	26.56	3 15.26	0.247
Frid	27	21 11 48.3	25.65	3 9.09	0.268
Sat	28	21 21 53.2	24.73	3 2.42	0.288
SUN	29	21 31 36.1	+ 23.81	2 55.27	0.308
Mon	30	21 40 56.7	22.88	2 47.64	0.327
Tues	31	21 49 54.8	21.94	2 39.55	0.346
Wed	32	N. 21 58 30.3	+ 20.99	2 31.02	0.365

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

JUNE, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	THE SUN'S Difference for 1 Hour.	Equation of Time, to be Added to / Subtracted from Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Wed	1	N. 21 58 30.3	+ 20.99	2 31.02	0.365
Thur	2	22 6 42.9	20.04	2 22.05	0.382
Frid	3	22 14 32.4	19.07	2 12.66	0.399
Sat	4	22 21 58.7	18.10	2 2.88	0.415
SUN	5	22 29 1.6	+ 17.12	1 52.73	0.430
Mon	6	22 35 41.0	16.14	1 42.22	0.445
Tues	7	22 41 56.7	15.15	1 31.38	0.458
Wed	8	22 47 48.4	14.15	1 20.23	0.470
Thur	9	22 53 16.0	13.14	1 8.80	0.481
Frid	10	22 58 19.5	12.13	0 57.12	0.491
Sat	11	23 2 58.7	11.12	0 45.21	0.500
SUN	12	23 7 13.6	+ 10.10	0 33.10	0.508
Mon	13	23 11 4.1	9.08	0 20.81	0.515
Tues	14	23 14 30.0	8.05	0 8.36	0.521
Wed	15	23 17 31.2	7.02	0 4.22	0.526
Thur	16	23 20 7.7	6.00	0 16.92	0.531
Frid	17	23 22 19.5	4.97	0 29.72	0.534
Sat	18	23 24 6.6	3.94	0 42.58	0.537
SUN	19	23 25 28.9	+ 2.91	0 55.49	0.538
Mon	20	23 26 26.4	1.87	1 8.43	0.539
Tues	21	23 26 59.2	+ 0.84	1 21.38	0.539
Wed	22	23 27 7.2	− 0.19	1 34.32	0.538
Thur	23	23 26 50.4	1.22	1 47.21	0.536
Frid	24	23 26 8.8	2.25	2 0.05	0.533
Sat	25	23 25 2.5	3.28	2 12.82	0.529
SUN	26	23 23 31.5	− 4.31	2 25.49	0.525
Mon	27	23 21 35.9	5.34	2 38.05	0.520
Tues	28	23 19 15.7	6.36	2 50.48	0.515
Wed	29	23 16 30.9	7.39	3 2.77	0.508
Thur	30	23 13 21.7	8.40	3 14.88	0.500
Frid	31	N. 23 9 48.0	− 9.41	3 26.80	0.491

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing; the sign − indicates that north declinations are decreasing.

JULY, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	Difference for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Frid	1	N. 23 9 48.0	− 9.41	3 26.80	0.491
Sat	2	23 5 50.1	10.42	3 38.51	0.482
SUN	3	23 1 27.8	− 11.43	3 49.97	0.471
Mon	4	22 56 41.4	12.44	4 1.16	0.460
Tues	5	22 51 31.0	13.44	4 12.05	0.447
Wed	6	22 45 56.7	14.43	4 22.63	0.434
Thur	7	22 39 58.6	15.42	4 32.88	0.420
Frid	8	22 33 36.9	16.40	4 42.77	0.404
Sat	9	22 26 51.7	17.37	4 52.26	0.387
SUN	10	22 19 43.3	− 18.34	5 1.34	0.369
Mon	11	22 12 11.7	19.30	5 9.99	0.351
Tues	12	22 4 17.2	20.25	5 18.19	0.332
Wed	13	21 56 0.0	21.19	5 25.92	0.312
Thur	14	21 47 20.2	22.13	5 33.17	0.291
Frid	15	21 38 18.0	23.05	5 39.92	0.270
Sat	16	21 28 53.7	23.97	5 46.16	0.249
SUN	17	21 19 7.6	− 24.87	5 51.89	0.227
Mon	18	21 8 59.8	25.77	5 57.08	0.205
Tues	19	20 58 30.5	26.66	6 1.73	0.182
Wed	20	20 47 40.1	27.54	6 5.83	0.159
Thur	21	20 36 28.7	28.41	6 9.37	0.136
Frid	22	20 24 56.5	29.27	6 12.36	0.112
Sat	23	20 13 3.7	30.12	6 14.78	0.089
SUN	24	20 0 50.7	− 30.96	6 16.63	0.065
Mon	25	19 48 17.8	31.79	6 17.91	0.041
Tues	26	19 35 25.0	32.61	6 18.62	0.017
Wed	27	19 22 12.7	33.42	6 18.75	0.007
Thur	28	19 8 41.1	34.22	6 18.31	0.031
Frid	29	18 54 50.4	35.00	6 17.29	0.055
Sat	30	18 40 40.9	35.78	6 15.69	0.079
SUN	31	18 26 12.9	− 36.54	6 13.51	0.103
Mon	32	N. 18 11 26.8	37.30	6 10.74	0.128

The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing.

AUGUST, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	THE SUN'S Difference for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Mon	1	N. 18 11 26.8	− 37.30	6 10.74	0.128
Tues	2	17 56 22.8	38.04	6 7.37	0.153
Wed	3	17 41 1.0	38.77	6 3.41	0.178
Thur	4	17 25 21.9	39.48	5 58.86	0.202
Frid	5	17 9 25.8	40.19	5 53.71	0.227
Sat	6	16 53 13.0	40.88	5 47.96	0.253
SUN	7	16 36 43.8	− 41.56	5 41.60	0.278
Mon	8	16 19 58.5	42.22	5 34.64	0.303
Tues	9	16 2 57.3	42.87	5 27.08	0.328
Wed	10	15 45 40.7	43.50	5 18.93	0.353
Thur	11	15 28 9.1	44.13	5 10.18	0.378
Frid	12	15 10 22.6	44.74	5 0.85	0.402
Sat	13	14 52 21.6	45.34	4 50.93	0.426
SUN	14	14 34 6.3	− 45.92	4 40.45	0.449
Mon	15	14 15 37.3	46.49	4 29.41	0.472
Tues	16	13 56 54.9	47.05	4 17.81	0.495
Wed	17	13 37 59.2	47.60	4 5.67	0.517
Thur	18	13 18 50.4	48.12	3 53.00	0.539
Frid	19	12 59 29.2	48.64	3 39.82	0.560
Sat	20	12 39 55.7	49.15	3 26.14	0.580
SUN	21	12 20 10.0	− 49.65	3 11.97	0.600
Mon	22	12 0 12.7	50.13	2 57.34	0.619
Tues	23	11 40 4.0	50.60	2 42.27	0.637
Wed	24	11 19 44.1	51.05	2 26.76	0.655
Thur	25	10 59 13.4	51.50	2 10.84	0.672
Frid	26	10 38 32.2	51.93	1 54.52	0.688
Sat	27	10 17 40.7	52.35	1 37.81	0.704
SUN	28	9 56 39.3	− 52.75	1 20.74	0.719
Mon	29	9 35 28.2	53.15	1 3.31	0.733
Tues	30	9 14 7.9	53.53	0 45.55	0.747
Wed	31	8 52 38.5	53.90	0 27.46	0.760
Thur	32	N. 8 31 0.6	− 54.25	0 9.05	0.773

The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing.

SEPTEMBER, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.			Difference for 1 Hour.	Equation of Time, to be Subtracted from / Added to Mean Time.		Difference for 1 Hour.
		°	′	″	″	m	s	s
Thur	1	N. 8	31	0.6	− 54.25	0	9.05	0.773
Frid	2	8	9	14.3	54.59	0	9.66	0.786
Sat	3	7	47	20.2	54.91	0	28.65	0.797
SUN	4	7	25	18.4	− 55.22	0	47.92	0.808
Mon	5	7	3	9.4	55.51	1	7.45	0.818
Tues	6	6	40	53.5	55.80	1	27.23	0.828
Wed	7	6	18	30.9	56.07	1	47.23	0.838
Thur	8	5	56	2.2	56.32	2	7.45	0.847
Frid	9	5	33	27.7	56.56	2	27.87	0.855
Sat	10	5	10	47.6	56.78	2	48.46	0.862
SUN	11	4	48	2.3	− 56.99	3	9.21	0.868
Mon	12	4	25	12.3	57.18	3	30.10	0.873
Tues	13	4	2	17.7	57.36	3	51.12	0.878
Wed	14	3	39	18.9	57.53	4	12.25	0.882
Thur	15	3	16	16.3	57.68	4	33.46	0.885
Frid	16	2	53	10.2	57.82	4	54.73	0.887
Sat	17	2	30	0.9	57.95	5	16.04	0.888
SUN	18	2	6	48.6	− 58.06	5	37.37	0.888
Mon	19	1	43	33.8	58.16	5	58.69	0.887
Tues	20	1	20	16.8	58.25	6	19.97	0.885
Wed	21	0	56	57.9	58.33	6	41.19	0.882
Thur	22	0	33	37.2	58.39	7	2.33	0.879
Frid	23	N. 0	10	15.1	58.44	7	23.37	0.874
Sat	24	S. 0	13	8.1	58.48	7	44.28	0.868
SUN	25	0	36	32.0	− 58.50	8	5.04	0.861
Mon	26	0	59	56.2	58.51	8	25.63	0.853
Tues	27	1	23	20.5	58.50	8	46.03	0.845
Wed	28	1	46	44.5	58.49	9	6.21	0.836
Thur	29	2	10	7.9	58.45	9	26.16	0.826
Frid	30	2	33	30.2	58.40	9	45.86	0.815
Sat	31	S. 2	56	51.1	− 58.33	10	5.30	0.804

The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing and south declinations are increasing.

OCTOBER, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.			Difference for 1 Hour.	Equation of Time, to be Added to Mean Time.		Difference for 1 Hour.
		°	′	″	″	m	s	s
Sat	1	S. 2	56	51.1	− 58.33	10	5.30	0.804
SUN	2	3	20	10.2	− 58.25	10	24.46	0.792
Mon	3	3	43	27.3	58.15	10	43.32	0.779
Tues	4	4	6	41.7	58.04	11	1.87	0.766
Wed	5	4	29	53.2	57.91	11	20.08	0.751
Thur	6	4	53	1.4	57.76	11	37.94	0.736
Frid	7	5	16	5.9	57.60	11	55.43	0.720
Sat	8	5	39	6.4	57.42	12	12.54	0.704
SUN	9	6	2	2.4	− 57.23	12	29.24	0.687
Mon	10	6	24	53.5	57.02	12	45.52	0.669
Tues	11	6	47	39.5	56.79	13	1.36	0.650
Wed	12	7	10	19.7	56.55	13	16.74	0.631
Thur	13	7	32	54.0	56.29	13	31.65	0.610
Frid	14	7	55	22.1	56.02	13	46.06	0.589
Sat	15	8	17	43.4	55.73	13	59.95	0.567
SUN	16	8	39	57.7	− 55.43	14	13.30	0.545
Mon	17	9	2	4.4	55.11	14	26.10	0.521
Tues	18	9	24	3.3	54.78	14	38.33	0.497
Wed	19	9	45	54.1	54.43	14	49.96	0.471
Thur	20	10	7	36.4	54.07	15	0.96	0.445
Frid	21	10	29	9.8	53.69	15	11.31	0.417
Sat	22	10	50	34.0	53.30	15	21.00	0.389
SUN	23	11	11	48.7	− 52.90	15	30.01	0.360
Mon	24	11	32	53.5	52.48	15	38.32	0.331
Tues	25	11	53	47.8	52.04	15	45.92	0.301
Wed	26	12	14	31.2	51.58	15	52.79	0.271
Thur	27	12	35	3.6	51.10	15	58.91	0.240
Frid	28	12	55	24.5	50.61	16	4.29	0.208
Sat	29	13	15	33.4	50.10	16	8.91	0.176
SUN	30	13	35	29.8	− 49.58	16	12.75	0.143
Mon	31	13	55	13.3	49.04	16	15.81	0.110
Tues	32	S. 14	14	43.5	− 48.48	16	18.08	0.078

The sign − prefixed to the hourly change of declination indicates that south declinations are increasing.

NOVEMBER, 1910.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.			Difference for 1 Hour.	Equation of Time, to be Added to Mean Time.		Difference for 1 Hour.
		°	′	″	″	m	s	s
Tues	1	S. 14	14	43·5	− 48.48	16	18.08	0.078
Wed	2	14	34	0.2	47.90	16	19.56	0.045
Thur	3	14	53	2.7	47.30	16	20.23	0.011
Frid	4	15	11	50.6	46.68	16	20.09	0.023
Sat	5	15	30	23.4	46.04	16	19.14	0.057
SUN	6	15	48	40.8	− 45.39	16	17.38	0.091
Mon	7	16	6	42.3	44.72	16	14.80	0.125
Tues	8	16	24	27.7	44.04	16	11.40	0.159
Wed	9	16	41	56.4	43.33	16	7.18	0.193
Thur	10	16	59	8.0	42.61	16	2.13	0.228
Frid	11	17	16	2.1	41.87	15	56.25	0.262
Sat	12	17	32	38.3	41.12	15	49.55	0.297
SUN	13	17	48	56.3	− 40.35	15	42.01	0.332
Mon	14	18	4	55.6	39.57	15	33.63	0.367
Tues	15	18	20	35.9	38.77	15	24.42	0.402
Wed	16	18	35	56.9	37.96	15	14.37	0.436
Thur	17	18	50	58.3	37.13	15	3.48	0.471
Frid	18	19	5	39.4	36.28	14	51.76	0.506
Sat	19	19	20	0.0	35.42	14	39.19	0.541
SUN	20	19	33	59.7	− 34.54	14	25.78	0.576
Mon	21	19	47	38.3	33.65	14	11.55	0.611
Tues	22	20	0	55.5	32.75	13	56.49	0.645
Wed	23	20	13	50.9	31.83	13	40.62	0.679
Thur	24	20	26	23.9	30.90	13	23.94	0.712
Frid	25	20	38	34.3	29.95	13	6.46	0.744
Sat	26	20	50	21.8	28.99	12	48.20	0.776
SUN	27	21	1	46.0	− 28.01	12	29.17	0.807
Mon	28	21	12	46.5	27.02	12	9.40	0.838
Tues	29	21	23	23.0	26.01	11	48.91	0.868
Wed	30	21	33	35.3	24.99	11	27.71	0.897
Thur	31	S. 21	43	23.0	− 23.96	11	5.83	0.925

The sign − prefixed to the hourly change of declination indicates that south declinations are increasing.

DECEMBER, 1910.

AT GREENWICH MEAN NOON.

Day of the Week	Day of the Month.	THE SUN'S Apparent Declination.			Difference for 1 Hour.	Equation of Time, to be Added to / Subtracted from Mean Time.		Difference for 1 Hour.
		°	′	″	″	m	s	s
Thur	1	S. 21	43	23.0	− 23.96	11	5.83	0.925
Frid	2	21	52	45.7	22.91	10	43.29	0.952
Sat	3	22	1	43.1	21.85	10	20.12	0.978
SUN	4	22	10	15.1	− 20.78	9	56.35	1.003
Mon	5	22	18	21.2	19.70	9	31.99	1.027
Tues	6	22	26	1.3	18.61	9	7.08	1.049
Wed	7	22	33	15.1	17.52	8	41.64	1.070
Thur	8	22	40	2.4	16.41	8	15.70	1.090
Frid	9	22	46	22.9	15.29	7	49.30	1.109
Sat	10	22	52	16.5	14.16	7	22.47	1.127
SUN	11	22	57	43.0	− 13.03	6	55.22	1.144
Mon	12	23	2	42.3	11.89	6	27.60	1.159
Tues	13	23	7	14.1	10.74	5	59.63	1.173
Wed	14	23	11	18.3	9.59	5	31.34	1.185
Thur	15	23	14	54.8	8.43	5	2.76	1.197
Frid	16	23	18	3.5	7.27	4	33.91	1.207
Sat	17	23	20	44.4	6.11	4	4.82	1.217
SUN	18	23	22	57.3	− 4.95	3	35.51	1.225
Mon	19	23	24	42.2	3.78	3	6.01	1.232
Tues	20	23	25	58.9	2.60	2	36.36	1.238
Wed	21	23	26	47.4	1.42	2	6.58	1.242
Thur	22	23	27	7.7	− 0.25	1	36.71	1.245
Frid	23	23	26	59.8	+ 0.92	1	6.79	1.247
Sat	24	23	26	23.6	2.10	0	36.84	1.247
SUN	25	23	25	19.1	+ 3.28	0	6.89	1.246
Mon	26	23	23	46.4	4.46	0	23.00	1.244
Tues	27	23	21	45.5	5.63	0	52.81	1.240
Wed	28	23	19	16.3	6.81	1	22.50	1.234
Thur	29	23	16	19.0	7.98	1	52.04	1.226
Frid	30	23	12	53.7	9.15	2	21.38	1.217
Sat	31	23	9	0.5	10.31	2	50.49	1.207
SUN	32	S. 23	4	39.5	+ 11.46	3	19.35	1.196

The sign − prefixed to the hourly change of declination indicates that south declinations are increasing; the sign + indicates that south declinations are decreasing.

Correction to be applied to Seventy-fifth Meridian Time for reduction to Local Mean Time.

Longitude W.	Correction.	Longitude W.	Correction.
° ′ ″	h m s	° ′ ″	h m s
75 00 00	0 00 00	79 30 00	−0 18 00
75 07 30	−0 00 30	79 37 30	−0 18 30
75 15 00	−0 01 00	79 45 00	−0 19 00
75 22 30	−0 01 30	79 52 30	−0 19 30
75 30 00	−0 02 00	80 00 00	−0 20 00
75 37 30	−0 02 30	80 07 30	−0 20 30
75 45 00	−0 03 00	80 15 00	−0 21 00
75 52 30	−0 03 30	80 22 30	−0 21 30
76 00 00	−0 04 00	80 30 00	−0 22 00
76 07 30	−0 04 30	80 37 30	−0 22 30
76 15 00	−0 05 00	80 45 00	−0 23 00
76 22 30	−0 05 30	80 52 30	−0 23 30
76 30 00	−0 06 00	81 00 00	−0 24 00
76 37 30	−0 06 30	81 07 30	−0 24 30
76 45 00	−0 07 00	81 15 00	−0 25 00
76 52 30	−0 07 30	81 22 30	−0 25 30
77 00 00	−0 08 00	81 30 00	−0 26 00
77 07 30	−0 08 30	81 37 30	−0 26 30
77 15 00	−0 09 00	81 45 00	−0 27 00
77 22 30	−0 09 30	81 52 30	−0 27 30
77 30 00	−0 10 00	82 00 00	−0 28 00
77 37 30	−0 10 30	82 07 30	−0 28 30
77 45 00	−0 11 00	82 15 00	−0 29 00
77 52 30	−0 11 30	82 22 30	−0 29 30
78 00 00	−0 12 00	82 30 00	−0 30 00
78 07 30	−0 12 30	82 37 30	−0 30 30
78 15 00	−0 13 00	82 45 00	−0 31 00
78 22 30	−0 13 30	82 52 30	−0 31 30
78 30 00	−0 14 00	83 00 00	−0 32 00
78 37 30	−0 14 30	83 07 30	−0 32 30
78 45 00	−0 15 00	83 15 00	−0 33 00
78 52 30	−0 15 30	83 22 30	−0 33 30
79 00 00	−0 16 00	83 30 00	−0 34 00
79 07 30	−0 16 30	83 37 30	−0 34 30
79 15 00	−0 17 00	83 45 00	−0 35 00
79 22 30	−0 17 30	83 52 30	−0 35 30

Correction to be applied to Seventy-fifth Meridian Time for reduction to Local Mean Time.

Longitude W.	Correction.	Longitude W.	Correction.
° ′ ″	h m s	° ′ ″	h m s
84 00 00	−0 36 00	88 22 30	−0 53 30
84 07 30	−0 36 30	88 30 00	−0 54 00
84 15 00	−0 37 00	88 37 30	−0 54 30
84 22 30	−0 37 30	88 45 00	−0 55 00
84 30 00	−0 38 00	88 52 30	−0 55 30
84 37 30	−0 38 30	89 00 00	−0 56 00
84 45 00	−0 39 00	89 07 30	−0 56 30
84 52 30	−0 39 30	89 15 00	−0 57 00
85 00 00	−0 40 00	89 22 30	−0 57 30
85 07 30	−0 40 30	89 30 00	−0 58 00
85 15 00	−0 41 00	89 37 30	−0 58 30
85 22 30	−0 41 30	89 45 00	−0 59 00
85 30 00	−0 42 00	89 52 30	−0 59 30
85 37 30	−0 42 30	90 00 00	−1 00 00
85 45 00	−0 43 00	90 07 30	−1 00 30
85 52 30	−0 43 30	90 15 00	−1 01 00
86 00 00	−0 44 00	90 22 30	−1 01 30
86 07 30	−0 44 30	90 30 00	−1 02 00
86 15 00	−0 45 00	90 37 30	−1 02 30
86 22 30	−0 45 30	90 45 00	−1 03 00
86 30 00	−0 46 00	90 52 30	−1 03 30
86 37 30	−0 46 30	91 00 00	−1 04 00
86 45 00	−0 47 00	91 07 30	−1 04 30
86 52 30	−0 47 30	91 15 00	−1 05 00
87 00 00	−0 48 00	91 22 30	−1 05 30
87 07 30	−0 48 30	91 30 00	−1 06 00
87 15 00	−0 49 00	91 37 30	−1 06 30
87 22 30	−0 49 30	91 45 00	−1 07 00
87 30 00	−0 50 00	91 52 30	−1 07 30
87 37 30	−0 50 30	92 00 00	−1 08 00
87 45 00	−0 51 00	92 07 30	−1 08 30
87 52 30	−0 51 30	92 15 00	−1 09 00
88 00 00	−0 52 00	92 22 30	−1 09 30
88 07 30	−0 52 30	92 30 00	−1 10 00
88 15 00	−0 53 00	93 00 00	−1 12 00

Correction to be applied to Ninetieth Meridian Time for reduction to Local Mean Time.

Longitude W.	Correction.	Longitude W.	Correction.
° ′ ″	h m s	° ′ ″	h m s
75 00 00	+1 00 00	79 30 00	+0 42 00
75 07 30	+0 59 30	79 37 30	+0 41 30
75 15 00	+0 59 00	79 45 00	+0 41 00
75 22 30	+0 58 30	79 52 30	+0 40 30
75 30 00	+0 58 00	80 00 00	+0 40 00
75 37 30	+0 57 30	80 07 30	+0 39 30
75 45 00	+0 57 00	80 15 00	+0 39 00
75 52 30	+0 56 30	80 22 30	+0 38 30
76 00 00	+0 56 00	80 30 00	+0 38 00
76 07 30	+0 55 30	80 37 30	+0 37 30
76 15 00	+0 55 00	80 45 00	+0 37 00
76 22 30	+0 54 30	80 52 30	+0 36 30
76 30 00	+0 54 00	81 00 00	+0 36 00
76 37 30	+0 53 30	81 07 30	+0 35 30
76 45 00	+0 53 00	81 15 00	+0 35 00
76 52 30	+0 52 30	81 22 30	+0 34 30
77 00 00	+0 52 00	81 30 00	+0 34 00
77 07 30	+0 51 30	81 37 30	+0 33 30
77 15 00	+0 51 00	81 45 00	+0 33 00
77 22 30	+0 50 30	81 52 30	+0 32 30
77 30 00	+0 50 00	82 00 00	+0 32 00
77 37 30	+0 49 30	82 07 30	+0 31 30
77 45 00	+0 49 00	82 15 00	+0 31 00
77 52 30	+0 48 30	82 22 30	+0 30 30
78 00 00	+0 48 00	82 30 00	+0 30 00
78 07 30	+0 47 30	82 37 30	+0 29 30
78 15 00	+0 47 00	82 45 00	+0 29 00
78 22 30	+0 46 30	82 52 30	+0 28 30
78 30 00	+0 46 00	83 00 00	+0 28 00
78 37 30	+0 45 30	83 07 30	+0 27 30
78 45 00	+0 45 00	83 15 00	+0 27 00
78 52 30	+0 44 30	83 22 30	+0 26 30
79 00 00	+0 44 00	83 30 00	+0 26 00
79 07 30	+0 43 30	83 37 30	+0 25 30
79 15 00	+0 43 00	83 45 00	+0 25 00
79 22 30	+0 42 30	83 52 30	+0 24 30

Correction to be applied to Ninetieth Meridian Time for reduction to Local Mean Time.

Longitude W.	Correction.	Longitude W.	Correction.
° ′ ″	h m s	° ′ ″	h m s
84 00 00	+0 24 00	88 22 30	+0 06 30
84 07 30	+0 23 30	88 30 00	+0 06 00
84 15 00	+0 23 00	88 37 30	+0 05 30
84 22 30	+0 22 30	88 45 00	+0 05 00
84 30 00	+0 22 00	88 52 30	+0 04 30
84 37 30	+0 21 30	89 00 00	+0 04 00
84 45 00	+0 21 00	89 07 30	+0 03 30
84 52 30	+0 20 30	89 15 00	+0 03 00
85 00 00	+0 20 00	89 22 30	+0 02 30
85 07 30	+0 19 30	89 30 00	+0 02 00
85 15 00	+0 19 00	89 37 30	+0 01 30
85 22 30	+0 18 30	89 45 00	+0 01 00
85 30 00	+0 18 00	89 52 30	+0 00 30
85 37 30	+0 17 30	90 00 00	0 00 00
85 45 00	+0 17 00	90 07 30	−0 00 30
85 52 30	+0 16 30	90 15 00	−0 01 00
86 00 00	+0 16 00	90 22 30	−0 01 30
86 07 30	+0 15 30	90 30 00	−0 02 00
86 15 00	+0 15 00	90 37 30	−0 02 30
86 22 30	+0 14 30	90 45 00	−0 03 00
86 30 00	+0 14 00	90 52 30	−0 03 30
86 37 30	+0 13 30	91 00 00	−0 04 00
86 45 00	+0 13 00	91 07 30	−0 04 30
86 52 30	+0 12 30	91 15 00	−0 05 00
87 00 00	+0 12 00	91 22 30	−0 05 30
87 07 30	+0 11 30	91 30 00	−0 06 00
87 15 00	+0 11 00	91 37 30	−0 06 30
87 22 30	+0 10 30	91 45 00	−0 07 00
87 30 00	+0 10 00	91 52 30	−0 07 30
87 37 30	+0 09 30	92 00 00	−0 08 00
87 45 00	+0 09 00	92 07 30	−0 08 30
87 52 30	+0 08 30	92 15 00	−0 09 00
88 00 00	+0 08 00	92 22 30	−0 09 30
88 07 30	+0 07 30	92 30 00	−0 10 00
88 15 00	+0 07 00	93 00 00	−0 12 00

MEAN LOCAL TIME OF SUNRISE.

Declination.	Approximate date.	NORTH LATITUDE.										
		40°	41°	42°	43°	44°	45°	46°	47°	48°	49°	50°
° ′		h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
23 05 S.	Jan. 1	7 22	7 25	7 28	7 31	7 35	7 39	7 42	7 46	7 50	7 54	7 59
22 37	6	7 22	7 25	7 28	7 31	7 34	7 38	7 41	7 45	7 49	7 53	7 58
21 58	11	7 21	7 24	7 27	7 30	7 33	7 37	7 40	7 44	7 47	7 51	7 55
21 08	16	7 20	7 23	7 26	7 29	7 32	7 35	7 38	7 41	7 45	7 49	7 53
20 07	21	7 17	7 19	7 22	7 25	7 28	7 31	7 34	7 38	7 41	7 45	7 49
18 58	26	7 14	7 16	7 19	7 22	7 24	7 27	7 31	7 34	7 37	7 40	7 43
17 39 S.	31	7 10	7 12	7 15	7 17	7 19	7 22	7 25	7 28	7 31	7 33	7 37
16 13 S.	Feb. 5	7 05	7 07	7 09	7 11	7 13	7 16	7 19	7 21	7 24	7 26	7 29
14 40	10	7 00	7 01	7 03	7 05	7 07	7 09	7 12	7 14	7 16	7 18	7 21
13 01	15	6 54	6 56	6 58	6 59	7 01	7 02	7 04	7 06	7 08	7 10	7 12
11 16	20	6 47	6 48	6 49	6 51	6 52	6 54	6 56	6 58	6 59	7 01	7 03
9 28 S.	25	6 41	6 42	6 43	6 44	6 45	6 46	6 47	6 49	6 50	6 51	6 53
7 30 S.	Mar. 2	6 33	6 34	6 35	6 36	6 37	6 38	6 39	6 40	6 40	6 42	6 43
5 34	7	6 25	6 25	6 26	6 27	6 27	6 28	6 28	6 29	6 30	6 31	6 32
3 37	12	6 17	6 17	6 17	6 18	6 18	6 19	6 20	6 20	6 21	6 21	6 22
1 39 S.	17	6 09	6 09	6 09	6 09	6 09	6 09	6 09	6 10	6 10	6 10	6 11
0 20 N.	22	6 01	6 00	6 00	6 00	6 00	6 00	6 00	6 00	6 00	6 00	6 00
2 18 N.	27	5 53	5 52	5 52	5 51	5 51	5 50	5 50	5 50	5 50	5 49	5 49
4 15 N.	Apr. 1	5 45	5 45	5 44	5 43	5 43	5 42	5 41	5 40	5 40	5 39	5 38
6 09	6	5 37	5 36	5 35	5 34	5 33	5 32	5 31	5 31	5 30	5 28	5 27
8 02	11	5 29	5 27	5 26	5 25	5 24	5 23	5 21	5 20	5 19	5 18	5 16
9 51	16	5 22	5 21	5 19	5 18	5 16	5 15	5 13	5 12	5 10	5 08	5 06
11 35	21	5 14	5 12	5 10	5 09	5 07	5 04	5 03	5 01	4 59	4 57	4 55
13 15 N.	26	5 07	5 05	5 03	5 01	4 59	4 57	4 55	4 53	4 51	4 49	4 46
14 50 N.	May 1	5 00	4 58	4 56	4 54	4 52	4 49	4 47	4 45	4 43	4 40	4 37
16 19	6	4 54	4 52	4 50	4 47	4 45	4 42	4 40	4 37	4 34	4 32	4 29
17 42	11	4 49	4 46	4 44	4 41	4 39	4 36	4 33	4 30	4 27	4 23	4 20
18 55	16	4 44	4 41	4 38	4 35	4 32	4 30	4 27	4 23	4 20	4 16	4 13
19 58	21	4 40	4 37	4 34	4 31	4 28	4 25	4 21	4 18	4 14	4 10	4 07
21 00	26	4 36	4 32	4 29	4 26	4 23	4 20	4 17	4 13	4 09	4 05	4 01
21 48 N.	31	4 33	4 30	4 26	4 23	4 19	4 16	4 12	4 08	4 04	4 00	3 55
22 28 N.	June 5	4 31	4 28	4 24	4 21	4 17	4 14	4 10	4 06	4 01	3 57	3 52
22 57	10	4 30	4 26	4 23	4 20	4 16	4 12	4 08	4 04	3 59	3 55	3 50
23 17	15	4 30	4 26	4 23	4 19	4 15	4 12	4 08	4 03	3 59	3 54	3 49
23 26	20	4 30	4 27	4 23	4 20	4 16	4 12	4 08	4 04	3 59	3 54	3 49
23 25	25	4 31	4 27	4 24	4 20	4 16	4 13	4 09	4 04	3 59	3 55	3 50
23 14 N.	30	4 33	4 29	4 26	4 23	4 18	4 15	4 11	4 06	4 02	3 57	3 52

MEAN LOCAL TIME OF SUNSET.

Declination.	Approximate date.	NORTH LATITUDE.										
		40°	41°	42°	43°	44°	45°	46°	47°	48°	49°	50°
° ′		h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
23 03 S.	Jan. 1	4 45	4 42	4 39	4 36	4 33	4 29	4 25	4 21	4 17	4 13	4 09
22 34	6	4 50	4 47	4 45	4 42	4 38	4 34	4 31	4 27	4 23	4 19	4 15
21 53	11	4 55	4 52	4 49	4 46	4 43	4 39	4 36	4 33	4 29	4 25	4 21
21 02	16	5 00	4 57	4 55	4 52	4 49	4 46	4 43	4 39	4 36	4 32	4 28
20 01	21	5 06	5 03	5 01	4 58	4 55	4 52	4 49	4 46	4 43	4 40	4 36
18 50	26	5 11	5 08	5 06	5 04	5 01	4 58	4 56	4 53	4 50	4 47	4 43
17 31 S.	31	5 17	5 15	5 12	5 11	5 09	5 06	5 04	5 01	4 59	4 56	4 52
16 04 S.	Feb. 5	5 23	5 21	5 19	5 17	5 15	5 12	5 10	5 08	5 06	5 03	5 00
14 30	10	5 29	5 27	5 25	5 24	5 22	5 20	5 18	5 16	5 13	5 11	5 09
12 51	15	5 35	5 33	5 32	5 30	5 28	5 27	5 25	5 23	5 21	5 20	5 17
11 06	20	5 41	5 40	5 39	5 38	5 36	5 35	5 33	5 32	5 30	5 28	5 26
9 16 S.	25	5 47	5 46	5 45	5 44	5 43	5 42	5 41	5 39	5 38	5 37	5 35
7 18 S.	Mar. 2	5 53	5 52	5 51	5 50	5 49	5 49	5 48	5 47	5 46	5 45	5 44
5 23	7	5 58	5 59	5 58	5 57	5 56	5 56	5 56	5 55	5 53	5 53	5 52
3 25	12	6 04	6 04	6 04	6 04	6 03	6 03	6 02	6 02	6 01	6 00	6 00
1 27 S.	17	6 09	6 09	6 09	6 08	6 08	6 08	6 08	6 08	6 08	6 07	6 07
0 32 N.	22	6 14	6 14	6 14	6 14	6 15	6 15	6 15	6 15	6 15	6 15	6 15
2 30 N.	27	6 19	6 19	6 20	6 20	6 21	6 21	6 22	6 22	6 23	6 23	6 24
4 26 N.	Apr. 1	6 24	6 25	6 26	6 27	6 27	6 28	6 28	6 29	6 30	6 31	6 32
6 21	6	6 29	6 30	6 31	6 32	6 33	6 34	6 35	6 36	6 37	6 38	6 38
8 13	11	6 34	6 35	6 36	6 37	6 39	6 40	6 41	6 43	6 44	6 46	6 46
10 01	16	6 39	6 40	6 42	6 43	6 45	6 46	6 48	6 50	6 51	6 53	6 55
11 46	21	6 44	6 46	6 47	6 49	6 51	6 53	6 55	6 57	6 59	7 01	7 03
13 25 N.	26	6 49	6 51	6 53	6 55	6 57	6 59	7 01	7 03	7 06	7 08	7 10
14 59 N.	May 1	6 54	6 56	6 58	7 00	7 03	7 05	7 07	7 10	7 13	7 15	7 18
16 27	6	6 59	7 01	7 04	7 06	7 09	7 11	7 14	7 17	7 20	7 23	7 25
17 48	11	7 04	7 07	7 09	7 12	7 15	7 17	7 20	7 23	7 27	7 30	7 32
19 02	16	7 09	7 11	7 14	7 17	7 20	7 23	7 26	7 30	7 33	7 37	7 40
20 04	21	7 13	7 16	7 19	7 22	7 25	7 28	7 32	7 35	7 39	7 43	7 46
21 05	26	7 18	7 21	7 24	7 26	7 31	7 34	7 37	7 41	7 45	7 49	7 53
21 53 N.	31	7 22	7 26	7 29	7 32	7 36	7 39	7 43	7 47	7 51	7 55	7 59
22 31 N.	June 5	7 25	7 28	7 31	7 35	7 38	7 42	7 46	7 50	7 55	7 59	8 03
23 00	10	7 28	7 31	7 34	7 37	7 41	7 45	7 49	7 54	7 58	8 03	8 07
23 18	15	7 31	7 34	7 38	7 41	7 45	7 49	7 53	7 57	8 02	8 06	8 11
23 26	20	7 32	7 36	7 39	7 43	7 47	7 51	7 54	7 59	8 04	8 08	8 13
23 24	25	7 33	7 37	7 40	7 44	7 47	7 51	7 55	8 00	8 04	8 09	8 14
23 12 N.	30	7 33	7 37	7 40	7 43	7 47	7 51	7 55	7 59	8 04	8 08	8 14

MEAN LOCAL TIME OF SUNRISE.

Declination.	Approximate date.	NORTH LATITUDE.									
		40°	41°	42°	43°	44°	45°	46°	47°	48°	49°	50°
° ′		h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
22 52 N.	July 5	4 36	4 33	4 30	4 26	4 22	4 19	4 15	4 10	4 06	4 02	3 57
22 21	10	4 39	4 36	4 33	4 30	4 26	4 22	4 19	4 14	4 10	4 06	4 01
21 40	15	4 42	7 39	4 36	4 33	4 29	4 26	4 22	4 18	4 14	4 10	4 05
20 50	20	4 46	4 43	4 40	4 37	4 34	4 31	4 27	4 23	4 19	4 16	4 11
19 50	25	4 50	4 48	4 45	4 42	4 39	4 36	4 33	4 29	4 25	4 22	4 18
18 43 N.	30	4 55	4 52	4 50	4 47	4 44	4 41	4 38	4 35	4 32	4 29	4 25
17 28 N.	Aug. 4	4 59	4 56	4 54	4 51	4 49	4 46	4 43	4 40	4 37	4 34	4 31
16 06	9	5 04	5 02	5 00	4 58	4 55	4 53	4 51	4 48	4 45	4 41	4 38
14 37	14	5 09	5 07	5 05	5 03	5 01	4 59	4 57	4 54	4 52	4 48	4 45
13 03	19	5 14	5 12	5 10	5 09	5 07	5 05	5 03	5 01	4 59	4 55	4 53
11 23	24	5 18	5 16	5 15	5 13	5 12	5 10	5 08	5 06	5 04	5 02	5 00
9 39 N.	29	5 23	5 22	5 21	5 20	5 18	5 17	5 15	5 14	5 12	5 10	5 08
7 51 N.	Sept. 3	5 28	5 27	5 26	5 26	5 24	5 23	5 22	5 20	5 18	5 17	5 16
6 00	8	5 33	5 32	5 31	5 31	5 30	5 29	5 28	5 27	5 25	5 24	5 23
4 07	13	5 37	5 36	5 36	5 35	5 34	5 34	5 33	5 32	5 32	5 31	5 29
2 11	18	5 42	5 42	5 42	5 41	5 41	5 41	5 40	5 40	5 40	5 39	5 39
0 15 N.	23	5 47	5 47	5 47	5 47	5 47	5 47	5 47	5 47	5 47	5 47	5 47
1 42 S.	28	5 52	5 52	5 52	5 53	5 53	5 53	5 53	5 53	5 54	5 54	5 53
3 39 S.	Oct. 3	5 57	5 57	5 58	5 58	5 59	5 59	6 00	6 00	6 00	6 00	6 01
5 35	8	6 02	6 03	6 03	6 04	6 05	6 05	6 06	6 07	6 08	6 08	6 09
7 28	13	6 07	6 08	6 09	6 10	6 11	6 12	6 13	6 14	6 15	6 15	6 16
9 20	18	6 12	6 12	6 14	6 15	6 16	6 18	6 19	6 20	6 22	6 23	6 25
11 08	23	6 18	6 19	6 21	6 22	6 24	6 25	6 27	6 28	6 30	6 31	6 33
12 51 S.	28	6 23	6 25	6 27	6 28	6 30	6 32	6 34	6 36	6 38	6 39	6 41
14 30 S.	Nov. 2	6 29	6 31	6 33	6 35	6 37	6 39	6 41	6 43	6 45	6 47	6 49
16 03	7	6 34	6 36	6 38	6 40	6 42	6 45	6 47	6 50	6 52	6 55	6 51
17 29	12	6 40	6 42	6 44	6 47	6 49	6 52	6 54	6 57	7 00	7 02	7 05
18 48	17	6 46	6 49	6 51	6 54	6 57	6 59	7 02	7 05	7 08	7 11	7 14
19 58	22	6 52	6 55	6 57	7 00	7 08	7 06	7 09	7 12	7 16	7 19	7 22
20 59 S.	27	6 57	7 00	7 03	7 06	7 09	7 12	7 15	7 19	7 23	7 26	7 29
21 51 S.	Dec. 2	7 02	7 05	7 08	7 11	7 14	7 17	7 20	7 24	7 28	7 32	7 36
22 32	7	7 07	7 10	7 13	7 17	7 20	7 23	7 27	7 31	7 35	7 39	7 43
23 02	12	7 11	7 15	7 18	7 21	7 25	7 28	7 32	7 36	7 40	7 44	7 49
23 20	17	7 15	7 18	7 21	7 25	7 28	7 32	7 35	7 40	7 44	7 48	7 53
23 27	22	7 18	7 21	7 24	7 27	7 31	7 35	7 38	7 42	7 47	7 51	7 55
23 22 S.	27	7 20	7 23	7 26	7 29	7 33	7 37	7 40	7 44	7 48	7 52	7 56
23 05 S.	Jan. 1	7 22	7 25	7 28	7 31	7 35	7 39	7 42	7 46	7 50	7 54	7 59

MEAN LOCAL TIME OF SUNSET.

Declination.	Approximate date.	NORTH LATITUDE.										
		40°	41°	42°	43°	44°	45°	46°	47°	48°	49°	50°
° ′		h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
22 50 N.	July 5	7 33	7 37	7 40	7 43	7 47	7 51	7 55	7 59	8 03	8 08	8 13
22 17	10	7 31	7 34	7 38	7 41	7 45	7 49	7 52	7 56	8 01	8 05	8 10
21 35	15	7 29	7 32	7 35	7 39	7 42	7 45	7 49	7 53	7 57	8 01	8 05
20 44	20	7 26	7 29	7 32	7 35	7 38	7 41	7 45	7 48	7 52	7 56	8 01
19 44	25	7 22	7 25	7 27	7 30	7 33	7 36	7 39	7 43	7 47	7 50	7 54
18 36 N.	30	7 17	7 20	7 22	7 25	7 28	7 31	7 33	7 37	7 40	7 43	7 48
17 20 N.	Aug. 4	7 12	7 14	7 16	7 19	7 21	7 24	7 27	7 30	7 33	7 36	7 40
15 57	9	7 06	7 08	7 10	7 12	7 15	7 17	7 19	7 22	7 25	7 27	7 32
14 28	14	7 00	7 02	7 04	7 06	7 08	7 10	7 12	7 15	7 16	7 20	7 23
12 53	19	6 53	6 55	6 57	6 58	7 00	7 02	7 04	7 06	7 07	7 10	7 13
11 13	24	6 46	6 48	6 49	6 50	6 52	6 54	6 55	6 57	6 58	7 01	7 03
9 29 N.	29	6 38	6 40	6 41	6 42	6 43	6 45	6 46	6 48	6 49	6 51	6 52
7 40 N.	Sept. 3	6 30	6 32	6 32	6 33	6 35	6 36	6 37	6 38	6 39	6 40	6 42
5 49	8	6 22	6 23	6 24	6 25	6 26	6 26	6 27	6 28	6 29	6 30	6 31
3 55	13	6 14	6 15	6 15	6 16	6 16	6 17	6 17	6 18	6 19	6 19	6 20
2 00	18	6 06	6 06	6 06	6 07	6 07	6 07	6 08	6 08	6 08	6 09	6 09
0 03 N.	23	5 58	5 58	5 58	5 58	5 58	5 58	5 58	5 58	5 58	5 58	5 58
1 54 S.	28	5 49	5 49	5 49	5 49	5 48	5 48	5 48	5 48	5 48	5 47	5 47
3 51 S.	Oct. 3	5 41	5 41	5 40	5 40	5 39	5 39	5 38	5 38	5 37	5 37	5 36
5 46	8	5 33	5 33	5 32	5 31	5 30	5 30	5 29	5 28	5 27	5 26	5 25
7 40	13	5 25	5 24	5 23	5 22	5 21	5 20	5 19	5 17	5 16	5 15	5 15
9 31	18	5 18	5 17	5 16	5 15	5 13	5 12	5 11	5 09	5 08	5 06	5 05
11 18	23	5 11	5 10	5 07	5 06	5 04	5 03	5 01	5 00	4 58	4 56	4 55
13 02 S.	28	5 04	5 02	5 00	4 59	4 57	4 55	4 53	4 51	4 49	4 47	4 46
14 40 S.	Nov. 2	4 58	4 56	4 54	4 52	4 50	4 48	4 46	4 43	4 41	4 39	4 36
16 12	7	4 53	4 51	4 48	4 46	4 44	4 41	4 39	4 37	4 34	4 31	4 29
17 38	12	4 48	4 45	4 43	4 41	4 38	4 35	4 33	4 30	4 27	4 24	4 22
18 55	17	4 44	4 42	4 38	4 36	4 33	4 30	4 27	4 24	4 21	4 18	4 16
20 05	22	4 40	4 38	4 35	4 32	4 29	4 26	4 23	4 20	4 17	4 13	4 09
21 05 S.	27	4 37	4 34	4 31	4 28	4 25	4 22	4 19	4 15	4 12	4 09	4 05
21 55 S.	Dec. 2	4 36	4 33	4 30	4 27	4 23	4 20	4 17	4 13	4 09	4 06	4 02
22 35	7	4 35	4 32	4 29	4 26	4 22	4 19	4 15	4 11	4 08	4 04	3 59
23 04′	12	4 36	4 32	4 29	4 26	4 23	4 19	4 15	4 11	4 07	4 03	3 58
23 21	17	4 37	4 33	4 30	4 27	4 24	4 20	4 16	4 12	4 08	4 04	3 59
23 27	22	4 39	4 36	4 33	4 30	4 26	4 22	4 19	4 15	4 10	4 06	4 02
23 21 S.	27	4 42	4 39	4 36	4 33	4 29	4 26	4 22	4 18	4 14	4 10	4 05
23 03 S.	Jan. 1	4 45	4 42	4 39	4 36	4 32	4 29	4 25	4 21	4 17	4 13	4 09

REDUCTION OF LOCAL MEAN TIME OF SUNRISE AND SUNSET TO STANDARD MERIDIAN TIME.

Difference of longitude between local and standard meridian.	Reduction to be applied to local mean time.	Difference of longitude between local and standard meridian.	Reduction to be applied to mean local time.	Difference of longitude between local and standard meridian.	Reduction to be applied to mean local time.
° ′ ° ′	*Minutes.*	° ′ ° ′	*Minutes.*	°	*Hours.*
0 00 to 0 07	0	7 23 to 7 37	30	15	1
0 08 to 0 22	1	7 38 to 7 52	31	30	2
0 23 to 0 37	2	7 53 to 8 07	32	45	3
0 38 to 0 52	3	8 08 to 8 22	33	60	4
0 53 to 1 07	4	8 23 to 8 37	34	75	5
1 08 to 1 22	5	8 38 to 8 52	35	90	6
1 23 to 1 37	6	8 53 to 9 07	36	105	7
1 38 to 1 52	7	9 08 to 9 22	37	120	8
1 53 to 2 07	8	9 23 to 9 37	38	135	9
2 08 to 2 22	9	9 38 to 9 52	39	150	10
2 23 to 2 37	10	9 53 to 10 07	40	165	11
2 38 to 2 52	11	10 08 to 10 22	41	180	12
2 53 to 3 07	12	10 23 to 10 37	42		
3 08 to 3 22	13	10 38 to 10 52	43		
3 23 to 3 37	14	10 53 to 11 07	44		
3 38 to 3 52	15	11 08 to 11 22	45		
3 53 to 4 07	16	11 23 to 11 37	46		
4 08 to 4 22	17	11 38 to 11 52	47		
4 23 to 4 37	18	11 53 to 12 07	48		
4 38 to 4 52	19	12 08 to 12 22	49		
4 53 to 5 07	20	12 23 to 12 37	50		
5 08 to 5 22	21	12 38 to 12 52	51		
5 23 to 5 37	22	12 53 to 13 07	52		
5 38 to 5 52	23	13 08 to 13 22	53		
5 53 to 6 07	24	13 23 to 13 37	54		
6 08 to 6 22	25	13 38 to 13 52	55		
6 23 to 6 37	26	13 53 to 14 07	56		
6 38 to 6 52	27	14 08 to 14 22	57		
6 53 to 7 07	28	14 23 to 14 37	58		
7 08 to 7 22	29	14 38 to 14 52	59		

If local meridian is east of standard meridian, subtract from local mean time.

If local meridian is west of standard meridian, add to local mean time.

For differences of longitude less than 15°, use the first part of the table. For greater differences take from the last part of the table the hour corresponding to the nearest tabulated value less than the given difference, and from the first part of the table the minutes corresponding to the remainder obtained by subtracting this tabulated value from the given difference.

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909

No. 118

The Sun's Apparent Declination and Equation of Time

1909

(Beginning with April)

HYDROGRAPHIC OFFICE

Washington : : : Government Printing Office : : : 1909

No. 118

The Sun's Apparent Declination and Equation of Time

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(Beginning with April)

PUBLISHED BY THE HYDROGRAPHIC OFFICE UNDER
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REMOTE STORAGE

NOTE.

Compiled from the Nautical Almanac, for use in connection with Hydrographic Office publication No. 106, Azimuth Tables.

Table I contains for Greenwich mean noon of each day the Sun's Apparent Declination and the Equation of Time. Adjoining columns contain the differences of these quantities for one hour.

Tables II and III contain the correction for West Longitude to be applied to Standard Time for reduction to Local Mean Time.

APRIL, 1909.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	Difference for 1 Hour.	Equation of Time, to be Subtracted from / Added to Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Thur.	1	N. 4 24 12.2	+57.93	4 5.05	0.758
Frid.	2	4 47 19.9	57.72	3 46.91	0.753
Sat.	3	5 10 22.5	57.50	3 28.88	0.748
SUN.	4	5 33 19.4	+57.25	3 10.98	0.743
Mon.	5	5 56 10.4	57.00	2 53.24	0.736
Tues.	6	6 18 55.3	56.73	2 35.66	0.728
Wed.	7	6 41 33.7	+56.46	2 18.29	0.719
Thur.	8	7 4 5.2	56.17	2 1.14	0.710
Frid.	9	7 26 29.5	55.87	1 44.22	0.700
Sat.	10	7 48 46.4	+55.55	1 27.56	0.688
SUN.	11	8 10 55.5	55.21	1 11.18	0.676
Mon.	12	8 32 56.4	54.87	0 55.10	0.663
Tues.	13	8 54 49.0	+54.51	0 39.34	0.650
Wed.	14	9 16 32.8	54.13	0 23.92	0.635
Thur.	15	9 38 7.5	53.75	0 8.84	0.621
Frid.	16	9 59 32.7	+53.35	0 5.88	0.605
Sat.	17	10 20 48.2	52.93	0 20.22	0.589
SUN.	18	10 41 53.6	52.51	0 34.17	0.573
Mon.	19	11 2 48.4	+52.06	0 47.72	0.556
Tues.	20	11 23 32.4	51.60	1 0.87	0.539
Wed.	21	11 44 5.2	51.13	1 13.59	0.521
Thur.	22	12 4 26.4	+50.63	1 25.89	0.503
Frid.	23	12 24 35.7	50.13	1 37.75	0.485
Sat.	24	12 44 32.7	49.61	1 49.17	0.466
SUN.	25	13 4 17.0	+49 07	2 0.14	0.447
Mon.	26	13 23 48.3	48.52	2 10.65	0.428
Tues.	27	13 43 6.3	47.97	2 20.69	0.408
Wed.	28	14 2 10.7	+47.39	2 30.24	0.388
Thur.	29	14 21 1.2	46.80	2 39.29	0.367
Frid.	30	14 39 37.4	46.20	2 47.84	0.346
Sat.	31	N. 14 57 58.9	+45.59	2 55.88	0.324

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

MAY, 1909.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	Difference for 1 Hour.	Equation of Time, to be Added to Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Sat.	1	N. 14 57 58.9	+45.59	2 55.88	0.324
SUN.	2	15 16 5.8	44.97	3 3.39	0.302
Mon.	3	15 33 57.4	44.32	3 10.37	0.280
Tues.	4	15 51 33.5	+43.67	3 16.81	0.257
Wed.	5	16 8 53.8	43.01	3 22.70	0.234
Thur.	6	16 25 58.1	42.34	3 28.03	0.210
Frid.	7	16 42 46.1	+41.65	3 32.80	0.186
Sat.	8	16 59 17.4	40.95	3 36.99	0.162
SUN.	9	17 15 31.7	40.23	3 40.60	0.138
Mon.	10	17 31 28.9	+39.51	3 43.63	0.114
Tues.	11	17 47 8.8	38.79	3 46.06	0.089
Wed.	12	18 2 30.8	38.04	3 47.90	0.064
Thur.	13	18 17 34.9	+37.28	3 49.15	0.039
Frid.	14	18 32 20.5	36.51	3 49.80	0.014
Sat.	15	18 46 47.5	35.73	3 49.85	0.010
SUN.	16	19 0 55.7	+34.93	3 49.32	0.034
Mon.	17	19 14 44.7	34.13	3 48.22	0.058
Tues.	18	19 28 14.1	33.31	3 46.54	0.082
Wed.	19	19 41 23.8	+32.48	3 44.29	0.105
Thur.	20	19 54 13.4	31.64	3 41.49	0.128
Frid.	21	20 6 42.7	30.78	3 38.15	0.150
Sat.	22	20 18 51.3	+29.91	3 34.28	0.172
SUN.	23	20 30 39.0	29.04	3 29.89	0.194
Mon.	24	20 42 5.5	28.15	3 24.99	0.215
Tues.	25	20 53 10.6	+27.26	3 19.59	0.235
Wed.	26	21 3 54.2	26.36	3 13.71	0.255
Thur.	27	21 14 16.2	25.45	3 7.37	0.274
Frid.	28	21 24 16.0	+24.52	3 0.56	0.293
Sat.	29	21 33 53.4	23.59	2 53.29	0.312
SUN.	30	21 43 8.4	22.65	2 45.59	0.330
Mon.	31	21 52 0.8	21.70	2 37.47	0.347
Tues.	32	N. 22 0 30.4	+20.75	2 28.94	0.364

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

JUNE, 1909.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	Difference for 1 Hour.	Equation of Time, to be Added to / Subtracted from Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Tues.	1	N. 22 0 30.4	+20.75	2 28.94	0.364
Wed.	2	22 8 37.0	19.79	2 20.01	0.380
Thur.	3	22 16 20.4	18.82	2 10.70	0.396
Frid.	4	22 23 40.5	+17.84	2 1.02	0.411
Sat.	5	22 30 37.2	16.86	1 50.98	0.426
SUN.	6	22 37 10 3	15.88	1 40.59	0.440
Mon.	7	22 43 19.7	+14.89	1 29.88	0.453
Tues.	8	22 49 5.3	13.90	1 18.85	0.466
Wed.	9	22 54 26.9	12.90	1 7.52	0.478
Thur.	10	22 59 24.5	+11.89	0 55.91	0.489
Frid.	11	23 3 57.8	10.88	0 44.05	0.499
Sat.	12	23 8 6.9	9.86	0 31.95	0.509
SUN.	13	23 11 51.6	+ 8.85	0 19.63	0.517
Mon.	14	23 15 11.8	7.83	0 7.12	0.525
Tues.	15	23 18 7.5	6.80	0 5.56	0.531
Wed.	16	23 20 38.5	+ 5.77	0 18.38	0.536
Thur.	17	23 22 44.8	4.74	0 31.31	0.540
Frid.	18	23 24 26.3	3.71	0 44.32	0.543
Sat.	19	23 25 43.1	+ 2.67	0 57.38	0.545
SUN.	20	23 26 35.0	1.64	1 10.48	0.546
Mon.	21	23 27 2.0	+ 0.61	1 23.58	0.545
Tues.	22	23 27 4.3	− 0.43	1 36.64	0.543
Wed.	23	23 26 41.7	1.46	1 49.65	0.540
Thur.	24	23 25 54.3	2.50	2 2.58	0.537
Frid.	25	23 24 42.2	− 3.53	2 15.42	0.532
Sat.	26	23 23 5.2	4.56	2 28.13	0.526
SUN.	27	23 21 3.6	5.59	2 40.68	0.519
Mon.	28	23 18 37.4	− 6.61	2 53.06	0.512
Tues.	29	23 15 46.6	7.63	3 5.24	0.503
Wed.	30	23 12 31.4	8.65	3 17.21	0.494
Thur.	31	N. 23 8 51.8	− 9.66	3 28.95	0.484

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing; the sign − indicates that north declinations are decreasing.

JULY, 1909.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	THE SUN'S Difference for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Thur.	1	N. 23 8 51.8	− 9.66	3 28.95	0.484
Frid.	2	23 4 47.9	10.67	3 40.43	0.473
Sat.	3	23 0 19.9	11.67	3 51.65	0.462
SUN.	4	22 55 27.8	−12.67	4 2.58	0.449
Mon.	5	22 50 11.7	13.67	4 13.21	0.436
Tues.	6	22 44 31.9	14.66	4 23.52	0.423
Wed.	7	22 38 28.4	−15.64	4 33.50	0.408
Thur.	8	22 32 1.4	16.62	4 43.13	0.394
Frid.	9	22 25 11.0	17.59	4 52.39	0.378
Sat.	10	22 17 57.3	−18.56	5 1.28	0.362
SUN.	11	22 10 20.6	19.51	5 9.77	0.345
Mon.	12	22 2 21.0	20.46	5 17.84	0.328
Tues.	13	21 53 58.6	−21.40	5 25.49	0.309
Wed.	14	21 45 13.7	22.34	5 32.69	0.290
Thur.	15	21 36 6.5	23.27	5 39.42	0.270
Frid.	16	21 26 37.2	−24.19	5 45.66	0.250
Sat.	17	21 16 45.9	25.09	5 51.40	0.228
SUN.	18	21 6 32.8	25.99	5 56.61	0.206
Mon.	19	20 55 58.3	−26.89	6 1.28	0.184
Tues.	20	20 45 2.6	27.77	6 5.42	0.161
Wed.	21	20 33 45.9	28.63	6 8.99	0.137
Thur.	22	20 22 8.5	−29.49	6 11.99	0.113
Frid.	23	20 10 10.6	30.34	6 14.40	0.088
Sat.	24	19 57 52.4	31.17	6 16.22	0.063
SUN.	25	19 45 14.4	−32.00	6 17.44	0.038
Mon.	26	19 32 16.7	32.81	6 18.05	0.013
Tues.	27	19 18 59.5	33.61	6 18.05	0.013
Wed.	28	19 5 23.1	−34.41	6 17.44	0.038
Thur.	29	18 51 27.9	35.19	6 16.22	0.064
Frid.	30	18 37 14.2	35.95	6 14.37	0.090
Sat.	31	18 22 42.2	36.71	6 11.91	0.115
SUN.	32	N. 18 7 52.2	−37.46	6 8.84	0.140

The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing.

AUGUST, 1909.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	Difference for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
SUN.	1	N. 18 7 52.2	−37.46	6 8.84	0.140
Mon.	2	17 52 44.4	38.19	6 5.17	0.166
Tues.	3	17 37 19.1	38.91	6 0.90	0.190
Wed.	4	17 21 36.6	−39.62	5 56.03	0.215
Thur.	5	17 5 37.2	40.33	5 50.57	0.240
Frid.	6	16 49 21.2	41.02	5 44.53	0.264
Sat.	7	16 32 48.8	−41.69	5 37.92	0.288
SUN.	8	16 16 0.3	42.35	5 30.74	0.311
Mon.	9	15 58 56.0	43.01	5 22.99	0.334
Tues.	10	15 41 36.2	−43.65	5 14.68	0.358
Wed.	11	15 24 1.2	44.27	5 5.82	0.381
Thur.	12	15 6 11.4	44.88	4 56.41	0.404
Frid.	13	14 48 7.0	−45.48	4 46.45	0.427
Sat.	14	14 29 48.3	46.07	4 35.94	0.449
SUN.	15	14 11 15.7	46.64	4 24.89	0.471
Mon.	16	13 52 29.5	−47.20	4 13.31	0.493
Tues.	17	13 33 30.1	47.75	4 1.20	0.515
Wed.	18	13 14 17.7	48.28	3 48.57	0.537
Thur.	19	12 54 52.7	−48.80	3 35.43	0.558
Frid.	20	12 35 15.4	49.30	3 21.78	0.579
Sat.	21	12 15 26.2	49.79	3 7.64	0.599
SUN.	22	11 55 25.4	−50.27	2 53.02	0.619
Mon.	23	11 35 13.3	50.74	2 37.93	0.638
Tues.	24	11 14 50.3	51.19	2 22.38	0.657
Wed.	25	10 54 16.6	−51.62	2 6.39	0.675
Thur.	26	10 33 32.7	52.04	1 49.97	0.693
Frid.	27	10 12 38.9	52.45	1 33.13	0.710
Sat.	28	9 51 35.3	−52.84	1 15.90	0.726
SUN.	29	9 30 22.3	53.22	0 58.29	0.742
Mon.	30	9 9 0.5	53.60	0 40.31	0.756
Tues.	31	8 47 30.0	53.95	0 21.99	0.769
Wed.	32	N. 8 25 51.0	−54.30	0 3.37	0.782

The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing.

SEPTEMBER, 1909.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	THE SUN'S Difference for 1 Hour.	Equation of Time, to be Subtracted from / Added to Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Wed.	1	N. 8 25 51.0	−54.30	0 3.37	0.782
Thur.	2	8 4 3.8	54.63	0 15.57	0.794
Frid.	3	7 42 8.8	54.96	0 34.77	0.805
Sat.	4	7 20 6.2	−55.26	0 54.22	0.816
SUN.	5	6 57 56.4	55.56	1 13.92	0.825
Mon.	6	6 35 39.6	55.84	1 33.82	0.834
Tues.	7	6 13 16.2	−56.11	1 53.93	0.841
Wed.	8	5 50 46.6	56.36	2 14.21	0.848
Thur.	9	5 28 11.0	56.61	2 34.65	0.855
Frid.	10	5 5 29.7	−56.83	2 55.24	0.861
Sat.	11	4 42 43.1	57.05	3 15.97	0.866
SUN.	12	4 19 51.5	57.25	3 36.81	0.870
Mon.	13	3 56 55.3	−57.43	3 57.74	0.874
Tues.	14	3 33 54.9	57.60	4 18.75	0.877
Wed.	15	3 10 50.5	57.77	4 39.83	0.879
Thur.	16	2 47 42.6	−57.91	5 0.95	0.881
Frid.	17	2 24 31.5	58.04	5 22.10	0.882
Sat.	18	2 1 17.5	58.14	5 43.28	0.882
SUN.	19	1 38 1.0	−58.24	6 4.44	0.881
Mon.	20	1 14 42.4	58.32	6 25.57	0.880
Tues.	21	0 51 22.0	58.38	6 46.67	0.878
Wed.	22	0 28 0.2	−58.43	7 7.71	0.875
Thur.	23	N. 0 4 37.3	58.48	7 28.68	0.871
Frid.	24	S. 0 18 46.4	58.50	7 49.55	0.867
Sat.	25	0 42 10.4	−58.51	8 10.29	0.862
SUN.	26	1 5 34.4	58.50	8 30.89	0.855
Mon.	27	1 28 58.2	58.48	8 51.32	0.847
Tues.	28	1 52 21.4	−58.44	9 11.55	0.838
Wed.	29	2 15 43.6	58.40	9 31.58	0.829
Thur.	30	2 39 4.6	58.34	9 51.37	0.819
Frid.	31	S. 3 2 24.1	−58.27	10 10.89	0.807

The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing; south declinations increasing.

OCTOBER, 1909.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	THE SUN'S Difference for 1 Hour.	Equation of Time, to be Added to Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Frid.	1	S. 3 2 24.1	−58.27	10 10.89	0.807
Sat.	2	3 25 41.7	58.19	10 30.12	0.794
SUN.	3	3 48 57.0	58.09	10 49.02	0.781
Mon.	4	4 12 9.7	−57.97	11 7.59	0.766
Tues.	5	4 35 19.8	57.84	11 25.80	0.751
Wed.	6	4 58 26.4	57.70	11 43.64	0.735
Thur.	7	5 21 29.5	−57.54	12 1.08	0.718
Frid.	8	5 44 28.7	57.37	12 18.10	0.700
Sat.	9	6 7 23.5	57.19	12 34.68	0.681
SUN.	10	6 30 13.6	−56.99	12 50.81	0.661
Mon.	11	6 52 58.6	56.77	13 6.46	0.642
Tues.	12	7 15 38.2	56.52	13 21.63	0.622
Wed.	13	7 38 11.9	−56.27	13 36.30	0.600
Thur.	14	8 0 39.2	56.00	13 50.45	0.578
Frid.	15	8 22 59.9	55.71	14 4.06	0.556
Sat.	16	8 45 13.5	−55.41	14 17.12	0.533
SUN.	17	9 7 19.6	55.09	14 29.62	0.509
Mon.	18	9 29 17.8	54.75	14 41.54	0.484
Tues.	19	9 51 7.7	−54.39	14 52.86	0.459
Wed.	20	10 12 48.9	54.02	15 3.58	0.434
Thur.	21	10 34 21.0	53.63	15 13.68	0.408
Frid.	22	10 55 43.5	−53.23	15 23.14	0.380
Sat.	23	11 16 56.1	52.81	15 31.94	0.353
SUN.	24	11 37 58.4	52.37	15 40.09	0.325
Mon.	25	11 58 50.0	−51.91	15 47.55	0.296
Tues.	26	12 19 30.5	51.44	15 54.31	0.267
Wed.	27	12 39 59.4	50.95	16 0.36	0.237
Thur.	28	13 0 16.5	−50.46	16 5.68	0.206
Frid.	29	13 20 21.5	49.96	16 10.25	0.174
Sat.	30	13 40 13.9	49.43	16 14.04	0.142
SUN.	31	13 59 53.3	48.87	16 17.05	0.110
Mon.	32	S. 14 19 19.2	−48.29	16 19.28	0.076

The sign — prefixed to the hourly change of declination indicates that south declinations are increasing.

NOVEMBER, 1909.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	THE SUN'S Difference for 1 Hour.	Equation of Time, to be Added to Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Mon.	1	S. 14 19 19.2	−48.29	16 19.28	0.076
Tues.	2	14 38 31.4	47.71	16 20.69	0.041
Wed.	3	14 57 29.5	47.12	16 21.27	0.007
Thur.	4	15 16 13.3	−46.51	16 21.02	0.028
Frid.	5	15 34 42.3	45.87	16 19.94	0.063
Sat.	6	15 52 55.8	45.22	16 18.02	0.098
SUN.	7	16 10 53.4	−44.56	16 15.25	0.133
Mon.	8	16 28 34.9	43.88	16 11.62	0.169
Tues.	9	16 45 59.9	43.18	16 7.14	0.204
Wed.	10	17 3 7.9	−42.46	16 1.81	0.240
Thur.	11	17 19 58.4	41.73	15 55.62	0.276
Frid.	12	17 36 31.0	40.98	15 48.57	0.312
Sat.	13	17 52 45.4	−40.21	15 40.66	0.347
SUN.	14	18 8 41.1	39.42	15 31.91	0.382
Mon.	15	18 24 17.8	38.62	15 22.32	0.417
Tues.	16	18 39 35.0	−37.80	15 11.89	0.452
Wed.	17	18 54 32.2	36.96	15 0.63	0.486
Thur.	18	19 9 9.1	36.10	14 48.55	0.520
Frid.	19	19 23 25.4	−35.23	14 35.66	0.554
Sat.	20	19 37 20.6	34.35	14 21.96	0.587
SUN.	21	19 50 54.3	33.44	14 7.46	0.620
Mon.	22	20 4 6.2	−32.52	13 52.18	0.653
Tues.	23	20 16 55.9	31.59	13 36.13	0.685
Wed.	24	20 29 23.2	30.65	13 19.31	0.717
Thur.	25	20 41 27.6	−29.70	13 1.73	0.748
Frid.	26	20 53 8.9	28.73	12 43.41	0.779
Sat.	27	21 4 26.8	27.75	12 24.35	0.809
SUN.	28	21 15 20.9	−26.75	12 4.57	0.839
Mon.	29	21 25 50.9	25.74	11 44.07	0.869
Tues.	30	21 35 56.6	24.72	11 22.87	0.898
Wed.	31	S. 21 45 37.7	−23.69	11 0.98	0.926

The sign −, prefixed to the hourly change of declination indicates that south declinations are increasing.

DECEMBER, 1909.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Declination.	Difference for 1 Hour.	Equation of Time, to be Added to / Subtracted from Mean Time.	Difference for 1 Hour.
		° ′ ″	″	m s	s
Wed.	1	S. 21 45 37.7	−23.69	11 0.98	0.926
Thur.	2	21 54 53.9	22.64	10 38.42	0.953
Frid.	3	22 3 44.9	21.58	10 15.22	0.980
Sat.	4	22 12 10.4	−20.52	9 51.39	1.006
SUN.	5	22 20 10.2	19.44	9 26.95	1.031
Mon.	6	22 27 44.1	18.36	9 1.93	1.053
Tues.	7	22 34 51.7	−17.26	8 36.38	1.075
Wed.	8	22 41 32.8	16.15	8 10.31	1.097
Thur.	9	22 47 47.2	15.03	7 43.73	1.117
Frid.	10	22 53 34.7	−13.91	7 16.69	1.135
Sat.	11	22 58 55.1	12.78	6 49.22	1.152
SUN.	12	23 3 48.2	11.63	6 21.35	1.168
Mon.	13	23 8 13.8	−10.48	5 53.12	1.183
Tues.	14	23 12 11.8	9.33	5 24.57	1.196
Wed.	15	23 15 42.0	8.17	4 55.72	1.207
Thur.	16	23 18 44.3	− 7.01	4 26.61	1.217
Frid.	17	23 21 18.6	5.83	3 57.28	1.226
Sat.	18	23 23 24.9	4.66	3 27.77	1.233
SUN.	19	23 25 3.0	3.49	2 58.12	1.238
Mon.	20	23 26 12.8	2.31	2 28.36	1.241
Tues.	21	23 26 54.3	− 1.13	1 58.51	1.244
Wed.	22	23 27 7.6	+ 0.04	1 28.62	1.246
Thur.	23	23 26 52.5	1.22	0 58.74	1.245
Frid.	24	23 26 9.2	2.40	0 28.89	1.243
Sat.	25	23 24 57.6	+ 3.57	0 0.92	1.240
SUN.	26	23 23 17.8	4.74	0 30.65	1.236
Mon.	27	23 21 9.9	5.92	1 0.27	1.231
Tues.	28	23 18 33.8	+ 7.09	1 29.75	1.225
Wed.	29	23 15 29.7	8.26	1 59.07	1.217
Thur.	30	23 11 57.7	9.42	2 28.19	1.208
Frid.	31	23 7 57.8	10.58	2 57.08	1.198
Sat.	32	S. 23 3 30.2	+11.73	3 25.73	1.187

The sign — prefixed to the hourly change of declination indicates that south declinations are increasing; the sign + indicates that south declinations are decreasing.

Correction to be applied to Seventy-fifth Meridian Time for reduction to Local Mean Time.

Longitude W.	Correction.	Longitude W.	Correction.
° ′ ″	h m s	° ′ ″	h m s
75 00 00	0 00 00	79 30 00	−0 18 00
75 07 30	−0 00 30	79 37 30	−0 18 30
75 15 00	−0 01 00	79 45 00	−0 19 00
75 22 30	−0 01 30	79 52 30	−0 19 30
75 30 00	−0 02 00	80 00 00	−0 20 00
75 37 30	−0 02 30	80 07 30	−0 20 30
75 45 00	−0 03 00	80 15 00	−0 21 00
75 52 30	−0 03 30	80 22 30	−0 21 30
76 00 00	−0 04 00	80 30 00	−0 22 00
76 07 30	−0 04 30	80 37 30	−0 22 30
76 15 00	−0 05 00	80 45 00	−0 23 00
76 22 30	−0 05 30	80 52 30	−0 23 30
76 30 00	−0 06 00	81 00 00	0 24 00
76 37 30	−0 06 30	81 07 30	−0 24 30
76 45 00	−0 07 00	81 15 00	−0 25 00
76 52 30	−0 07 30	81 22 30	−0 25 30
77 00 00	0 08 00	81 30 00	−0 26 00
77 07 30	−0 08 30	81 37 30	−0 26 30
77 15 00	0 09 00	81 45 00	−0 27 00
77 22 30	0 09 30	81 52 30	−0 27 30
77 30 00	0 10 00	82 00 00	0 28 00
77 37 30	−0 10 30	82 07 30	−0 28 30
77 45 00	−0 11 00	82 15 00	−0 29 00
77 52 30	−0 11 30	82 22 30	−0 29 30
78 00 00	−0 12 00	82 30 00	−0 30 00
78 07 30	−0 12 30	82 37 30	−0 30 30
78 15 00	−0 13 00	82 45 00	−0 31 00
78 22 30	−0 13 30	82 52 30	−0 31 30
78 30 00	−0 14 00	83 00 00	0 32 00
78 37 30	−0 14 30	83 07 30	0 32 30
78 45 00	−0 15 00	83 15 00	−0 33 00
78 52 30	−0 15 30	83 22 30	0 33 30
79 00 00	0 16 00	83 30 00	−0 34 00
79 07 30	−0 16 30	83 37 30	−0 34 30
79 15 00	0 17 00	83 45 00	−0 35 00
79 22 30	−0 17 30	83 52 30	−0 35 30

Correction to be applied to Seventy-fifth Meridian Time for reduction to Local Mean Time.

Longitude W.	Correction.	Longitude W.	Correction.
° ′ ″	h m s	° ′ ″	h m s
84 00 00	−0 36 00	88 22 30	−0 53 30
84 07 30	−0 36 30	88 30 00	−0 54 00
84 15 00	−0 37 00	88 37 30	−0 54 30
84 22 30	−0 37 30	88 45 00	−0 55 00
84 30 00	−0 38 00	88 52 30	−0 55 30
84 37 30	−0 38 30	89 00 00	−0 56 00
84 45 00	−0 39 00	89 07 30	−0 56 30
84 52 30	−0 39 30	89 15 00	−0 57 00
85 00 00	−0 40 00	89 22 30	−0 57 30
85 07 30	−0 40 30	89 30 00	−0 58 00
85 15 00	−0 41 00	89 37 30	−0 58 30
85 22 30	−0 41 30	89 45 00	−0 59 00
85 30 00	−0 42 00	89 52 30	−0 59 30
85 37 30	−0 42 30	90 00 00	−1 00 00
85 45 00	−0 43 00	90 07 30	−1 00 30
85 52 30	−0 43 30	90 15 00	−1 01 00
86 00 00	−0 44 00	90 22 30	−1 01 30
86 07 30	−0 44 30	90 30 00	−1 02 00
86 15 00	−0 45 00	90 37 30	−1 02 30
86 22 30	−0 45 30	90 45 00	−1 03 00
86 30 00	−0 46 00	90 52 30	−1 03 30
86 37 30	−0 46 30	91 00 00	−1 04 00
86 45 00	−0 47 00	91 07 30	−1 04 30
86 52 30	−0 47 30	91 15 00	−1 05 00
87 00 00	−0 48 00	91 22 30	−1 05 30
87 07 30	−0 48 30	91 30 00	−1 06 00
87 15 00	−0 49 00	91 37 30	−1 06 30
87 22 30	−0 49 30	91 45 00	−1 07 00
87 30 00	−0 50 00	91 52 30	−1 07 30
87 37 30	−0 50 30	92 00 00	−1 08 00
87 45 00	−0 51 00	92 07 30	−1 08 30
87 52 30	−0 51 30	92 15 00	−1 09 00
88 00 00	−0 52 00	92 22 30	−1 09 30
88 07 30	−0 52 30	92 30 00	−1 10 00
88 15 00	−0 53 00	93 00 00	−1 12 00

Correction to be applied to Ninetieth Meridian Time for reduction to Local Mean Time.

Longitude W.	Correction.	Longitude W.	Correction.
° ′ ″	h m s	° ′ ″	h m s
75 00 00	+1 00 00	79 30 00	+0 42 00
75 07 30	+0 59 30	79 37 30	+0 41 30
75 15 00	+0 59 00	79 45 00	+0 41 00
75 22 30	+0 58 30	79 52 30	+0 40 30
75 30 00	+0 58 00	80 00 00	+0 40 00
75 37 30	+0 57 30	80 07 30	+0 39 30
75 45 00	+0 57 00	80 15 00	+0 39 00
75 52 30	+0 56 30	80 22 30	+0 38 30
76 00 00	+0 56 00	80 30 00	+0 38 00
76 07 30	+0 55 30	80 37 30	+0 37 30
76 15 00	+0 55 00	80 45 00	+0 37 00
76 22 30	+0 54 30	80 52 30	+0 36 30
76 30 00	+0 54 00	81 00 00	+0 36 00
76 37 30	+0 53 30	81 07 30	+0 35 30
76 45 00	+0 53 00	81 15 00	+0 35 00
76 52 30	+0 52 30	81 22 30	+0 34 30
77 00 00	+0 52 00	81 30 00	+0 34 00
77 07 30	+0 51 30	81 37 30	+0 33 30
77 15 00	+0 51 00	81 45 00	+0 33 00
77 22 30	+0 50 30	81 52 30	+0 32 30
77 30 00	+0 50 00	82 00 00	+0 32 00
77 37 30	+0 49 30	82 07 30	+0 31 30
77 45 00	+0 49 00	82 15 00	+0 31 00
77 52 30	+0 48 30	82 22 30	+0 30 30
78 00 00	+0 48 00	82 30 00	+0 30 00
78 07 30	+0 47 30	82 37 30	+0 29 30
78 15 00	+0 47 00	82 45 00	+0 29 00
78 22 30	+0 46 30	82 52 30	+0 28 30
78 30 00	+0 46 00	83 00 00	+0 28 00
78 37 30	+0 45 30	83 07 30	+0 27 30
78 45 00	+0 45 00	83 15 00	+0 27 00
78 52 30	+0 44 30	83 22 30	+0 26 30
79 00 00	+0 44 00	83 30 00	+0 26 00
79 07 30	+0 43 30	83 37 30	+0 25 30
79 15 00	+0 43 00	83 45 00	+0 25 00
79 22 30	+0 42 30	83 52 30	+0 24 30

Correction to be applied to Ninetieth Meridian Time for reduction to Local Mean Time.

Longitude W.	Correction.	Longitude W.	Correction.
° ′ ″	h m s	° ′ ″	h m s
84 00 00	+0 24 00	88 22 30	+0 06 30
84 07 30	+0 23 30	88 30 00	+0 06 00
84 15 00	+0 23 00	88 37 30	+0 05 30
84 22 30	+0 22 30	88 45 00	+0 05 00
84 30 00	+0 22 00	88 52 30	+0 04 30
84 37 30	+0 21 30	89 00 00	+0 04 00
84 45 00	+0 21 00	89 07 30	+0 03 30
84 52 30	+0 20 30	89 15 00	+0 03 00
85 00 00	+0 20 00	89 22 30	+0 02 30
85 07 30	+0 19 30	89 30 00	+0 02 00
85 15 00	+0 19 00	89 37 30	+0 01 30
85 22 30	+0 18 30	89 45 00	+0 01 00
85 30 00	+0 18 00	89 52 30	+0 00 30
85 37 30	+0 17 30	90 00 00	0 00 00
85 45 00	+0 17 00	90 07 30	−0 00 30
85 52 30	+0 16 30	90 15 00	−0 01 00
86 00 00	+0 16 00	90 22 30	−0 01 30
86 07 30	+0 15 30	90 30 00	−0 02 00
86 15 00	+0 15 00	90 37 30	−0 02 30
86 22 30	+0 14 30	90 45 00	−0 03 00
86 30 00	+0 14 00	90 52 30	−0 03 30
86 37 30	+0 13 30	91 00 00	−0 04 00
86 45 00	+0 13 00	91 07 30	−0 04 30
86 52 30	+0 12 30	91 15 00	−0 05 00
87 00 00	+0 12 00	91 22 30	−0 05 30
87 07 30	+0 11 30	91 30 00	−0 06 00
87 15 00	+0 11 00	91 37 30	−0 06 30
87 22 30	+0 10 30	91 45 00	−0 07 00
87 30 00	+0 10 00	91 52 30	−0 07 30
87 37 30	+0 09 30	92 00 00	−0 08 00
87 45 00	+0 09 00	92 07 30	−0 08 30
87 52 30	+0 08 30	92 15 00	−0 09 00
88 00 00	+0 08 00	92 22 30	−0 09 30
88 07 30	+0 07 30	92 30 00	−0 10 00
88 15 00	+0 07 00	93 00 00	−0 12 00